

*Dolmatz and Wong*

PHYSICAL SCIENCE

# Laboratory Data Book

IDEAS AND INVESTIGATIONS IN SCIENCE

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# PHYSICAL SCIENCE

IDEAS AND INVESTIGATIONS IN SCIENCE

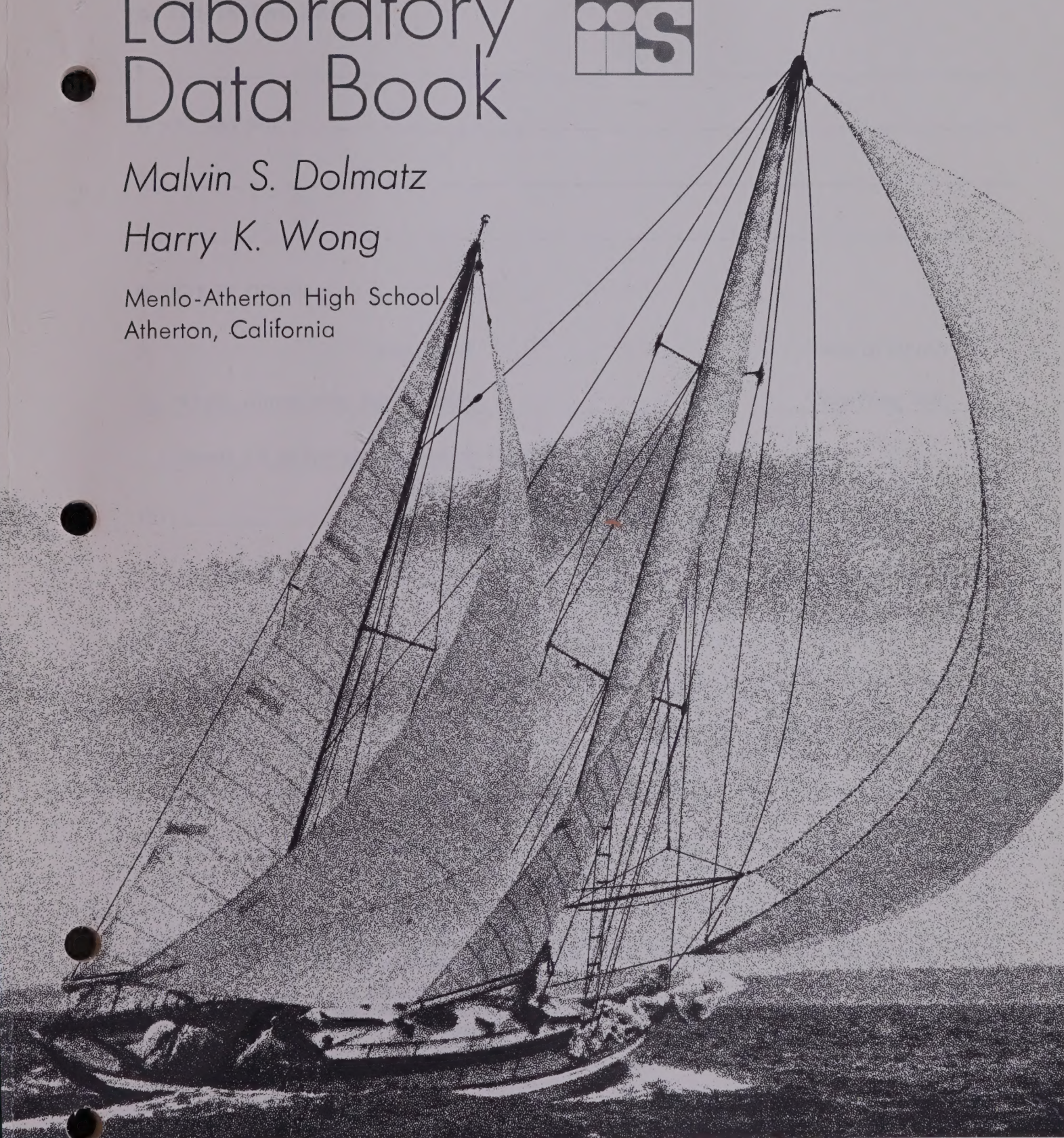
## Laboratory Data Book



*Malvin S. Dolmatz*

*Harry K. Wong*

Menlo-Atherton High School  
Atherton, California



Prentice-Hall, Inc., Englewood Cliffs, New Jersey



LABORATORY DATA BOOK

Ideas and Investigations in Science—PHYSICAL SCIENCE

Malvin S. Dolmatz and Harry K. Wong

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Physical Science Idea 1  
Predicting  
Investigation 1

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. IT'S IN THE BAG

1. \_\_\_\_\_

If not, why not? \_\_\_\_\_

2. \_\_\_\_\_

B. JOT IT DOWN

3. *Description* *Name of Object*

(a) white; round; very light; hollow; Ping-Pong ball

about 1¼ inches across; slightly flexible

(b) \_\_\_\_\_

(c) \_\_\_\_\_

(d) \_\_\_\_\_

(e) \_\_\_\_\_

(f) \_\_\_\_\_

(g) \_\_\_\_\_

4. \_\_\_\_\_

If not, why not? \_\_\_\_\_

5. \_\_\_\_\_

**C. DO YOU JUMP TO CONCLUSIONS?**

6. \_\_\_\_\_

7. \_\_\_\_\_

**D. THE SWINGING LIGHTS**

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_ 11. \_\_\_\_\_

12. \_\_\_\_\_

\_\_\_\_\_

13. \_\_\_\_\_

\_\_\_\_\_

14. \_\_\_\_\_

\_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_

(Always record the concept summary in the IDEA Summary.)



Physical Science Idea 1  
Predicting  
Investigation 2

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. SWINGING AND COUNTING

Trial 1 \_\_\_\_\_

Trial 2 \_\_\_\_\_

Trial 3 \_\_\_\_\_

1. \_\_\_\_\_

2. \_\_\_\_\_

Trial 4 \_\_\_\_\_

Trial 5 \_\_\_\_\_

Trial 6 \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_ 5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_ 8. \_\_\_\_\_

B. SHAKE IT UP

9. Top \_\_\_\_\_ Middle \_\_\_\_\_ Bottom \_\_\_\_\_

10. Top \_\_\_\_\_ Middle \_\_\_\_\_ Bottom \_\_\_\_\_

11. Top \_\_\_\_\_ Middle \_\_\_\_\_ Bottom \_\_\_\_\_

12. Top \_\_\_\_\_ Middle \_\_\_\_\_ Bottom \_\_\_\_\_

13. Top \_\_\_\_\_ Middle \_\_\_\_\_ Bottom \_\_\_\_\_

14. Top \_\_\_\_\_ Middle \_\_\_\_\_ Bottom \_\_\_\_\_

15. Top \_\_\_\_\_ Middle \_\_\_\_\_ Bottom \_\_\_\_\_

16. \_\_\_\_\_ Why? \_\_\_\_\_  
\_\_\_\_\_

### C. THE HOMEMADE SUBMARINE

17. \_\_\_\_\_

18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

21. \_\_\_\_\_

22. \_\_\_\_\_ Why? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### D. THE SAME OLD THING

23. \_\_\_\_\_

24. \_\_\_\_\_

### CONCEPT SUMMARY:

\_\_\_\_\_  
\_\_\_\_\_

(Always record the concept summary in the IDEA Summary.)



Physical Science Idea 1  
Predicting  
Investigation 3

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. TAKE ONE

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_ 7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_ Explain. \_\_\_\_\_

B. TAKE TWO THAT ARE THE SAME

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_ Why? \_\_\_\_\_

13. \_\_\_\_\_ Why? \_\_\_\_\_

14. \_\_\_\_\_ What is it? \_\_\_\_\_

C. TAKE TWO NOT THE SAME

15. (a) What would happen if \_\_\_\_\_



(b) \_\_\_\_\_

(c) \_\_\_\_\_

(d) \_\_\_\_\_

16. (a) I predict that

(b) I predict that

(c) I predict that

(d) I predict that

17. \_\_\_\_\_

**CONCEPT SUMMARY:**

(Always record the concept summary in the IDEA Summary.)



Physical Science Idea 1  
Predicting  
Investigation 4

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. SPRING HAS SPRUNG

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

\_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

\_\_\_\_\_

B. STRETCH

10. \_\_\_\_\_

11. \_\_\_\_\_

\_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

\_\_\_\_\_



14. \_\_\_\_\_

\_\_\_\_\_

15. \_\_\_\_\_

\_\_\_\_\_

16. \_\_\_\_\_ Why? \_\_\_\_\_

\_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_



Physical Science Idea 1  
Predicting  
Investigation 5

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. DO YOU SEE WHAT I SEE?

Trial 1 \_\_\_\_\_

Trial 2 \_\_\_\_\_

Trial 3 \_\_\_\_\_

1. \_\_\_\_\_

Trial 4 \_\_\_\_\_

Trial 5 \_\_\_\_\_

Trial 6 \_\_\_\_\_

2. \_\_\_\_\_

Trial 7 \_\_\_\_\_

Trial 8 \_\_\_\_\_

Trial 9 \_\_\_\_\_

3. \_\_\_\_\_

Trial 10 \_\_\_\_\_

Trial 11 \_\_\_\_\_

Trial 12 \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_ Explain. \_\_\_\_\_

**B. WHAT'S A SEYMOUR TIRE?**

13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_  
\_\_\_\_\_



Physical Science Idea 1  
Predicting  
**Investigation 6**

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**Data Sheet**

**A. IT'S 33 TIDDLYWINKS WIDE**

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

--

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

**B. BOLTS AND NUTS, NUTS AND BOLTS**

7. \_\_\_\_\_

\_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

\_\_\_\_\_

10. \_\_\_\_\_

\_\_\_\_\_

11. \_\_\_\_\_

\_\_\_\_\_

### C. STANDARD OPERATING PROCEDURE

12. \_\_\_\_\_ Why? \_\_\_\_\_

\_\_\_\_\_

13. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

#### CONCEPT SUMMARY:

\_\_\_\_\_

\_\_\_\_\_



Physical Science Idea 1  
Predicting  
**Investigation 7**

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**Data Sheet**

**A. THE NUMBERS GAME**

1. \_\_\_\_\_

2. \_\_\_\_\_ 3. \_\_\_\_\_

4. \_\_\_\_\_ 5. \_\_\_\_\_

6. \_\_\_\_\_ 7. \_\_\_\_\_

8. \_\_\_\_\_ 9. \_\_\_\_\_

10. \_\_\_\_\_ 11. \_\_\_\_\_ 12. \_\_\_\_\_

13. \_\_\_\_\_ 14. \_\_\_\_\_ 15. \_\_\_\_\_

**B. TAKE A BIG STEP**

16. \_\_\_\_\_ 17. \_\_\_\_\_ 18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

21. \_\_\_\_\_

22. \_\_\_\_\_

23. \_\_\_\_\_

**C. MILLIMETERS AND MILLILITERS**

24. \_\_\_\_\_ 25. \_\_\_\_\_

26. \_\_\_\_\_ 27. \_\_\_\_\_

28. \_\_\_\_\_

**D. THINK METRIC!**

29. \_\_\_\_\_

30. \_\_\_\_\_ 31. \_\_\_\_\_

32. *Boys*

*Girls*

1. \_\_\_\_\_

1. \_\_\_\_\_

2. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

4. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

33. \_\_\_\_\_

#### E. HOW MUCH DOES MILK WEIGH?

34. \_\_\_\_\_ 35. \_\_\_\_\_

36. \_\_\_\_\_ 37. \_\_\_\_\_

38. \_\_\_\_\_ 39. \_\_\_\_\_

40. \_\_\_\_\_ 41. \_\_\_\_\_

42. \_\_\_\_\_ 43. \_\_\_\_\_

#### F. METRIC OR ENGLISH?

44. \_\_\_\_\_ 45. \_\_\_\_\_ 46. \_\_\_\_\_

47. \_\_\_\_\_

\_\_\_\_\_

48. \_\_\_\_\_

49. \_\_\_\_\_

#### CONCEPT SUMMARY:

\_\_\_\_\_

\_\_\_\_\_



Physical Science Idea 1  
Predicting  
Investigation 8

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. MORE BOUNCE TO THE OUNCE

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_ Why? \_\_\_\_\_

(See page D16, Table 3)

5. \_\_\_\_\_ 6. \_\_\_\_\_

B. DON'T GET FOOLED AGAIN

7. \_\_\_\_\_

(See page D16, Table 4)

8. \_\_\_\_\_

C. DON'T BE A DROPOUT

9. \_\_\_\_\_ 10. \_\_\_\_\_ 11. \_\_\_\_\_

(See page D16, Table 8)

12. \_\_\_\_\_

13. \_\_\_\_\_

\_\_\_\_\_

CONCEPT SUMMARY:

\_\_\_\_\_

\_\_\_\_\_

**TABLE NO. 3**  
A COMPARISON OF THE BOUNCING  
HEIGHTS OF DIFFERENT KINDS OF BALLS

Ball	Original Height (cm)	Height of Bounce for each Trial (cm)					
		1	2	3	4	5	Ave.

**TABLE NO. 4**  
COMPARISON OF SWINGS PER MINUTE OF  
PENDULUMS OF DIFFERENT LENGTHS

Length of String (cm)	Swings per Minute for each Trial					
	1	2	3	4	5	Ave.

**TABLE NO. 8**

(1)		
(2)		
(3)		
(4)		
(5)		
(6)		



Physical Science Idea 1  
Predicting  
Investigation 9

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. DRAW ME A PICTURE

1. \_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

\_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

\_\_\_\_\_

(See page D20 Graph 3)

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_

**B. IT SHOWS MORE THAN IT TELLS**

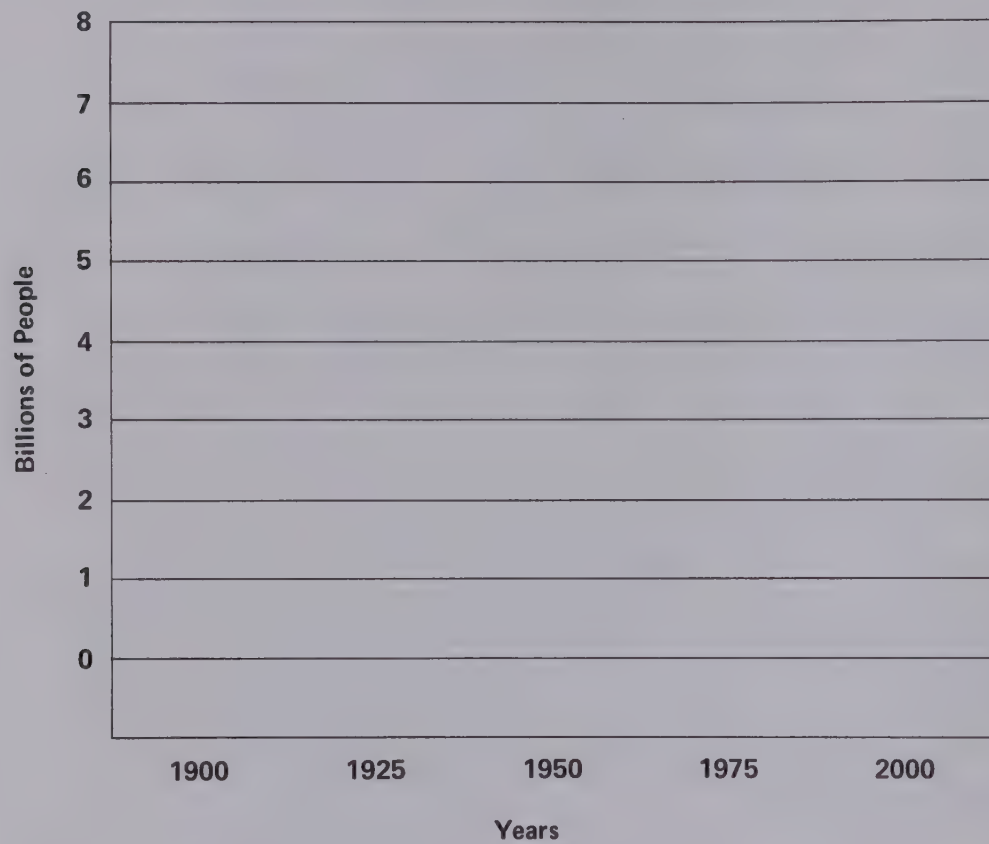
15. \_\_\_\_\_

16. \_\_\_\_\_

\_\_\_\_\_

**GRAPH NO. 4**

**THE GROWTH IN WORLD POPULATION (past and projected)**



17. \_\_\_\_\_

18. \_\_\_\_\_



Name

Date

Class

## C. WILL YOU HAVE A JOB TOMORROW?

GRAPH NO. **5**

TYPES OF JOBS IN THE U. S. AND NEW YORK CITY (percent of jobs)

		0%	10%	20%	30%	40%	50%	60%	70%	80%	90%
White Collar	U.S.										
	NYC										
Blue Collar	U.S.										
	NYC										
Service	U.S.										
	NYC										

19. \_\_\_\_\_

20. \_\_\_\_\_

21. \_\_\_\_\_

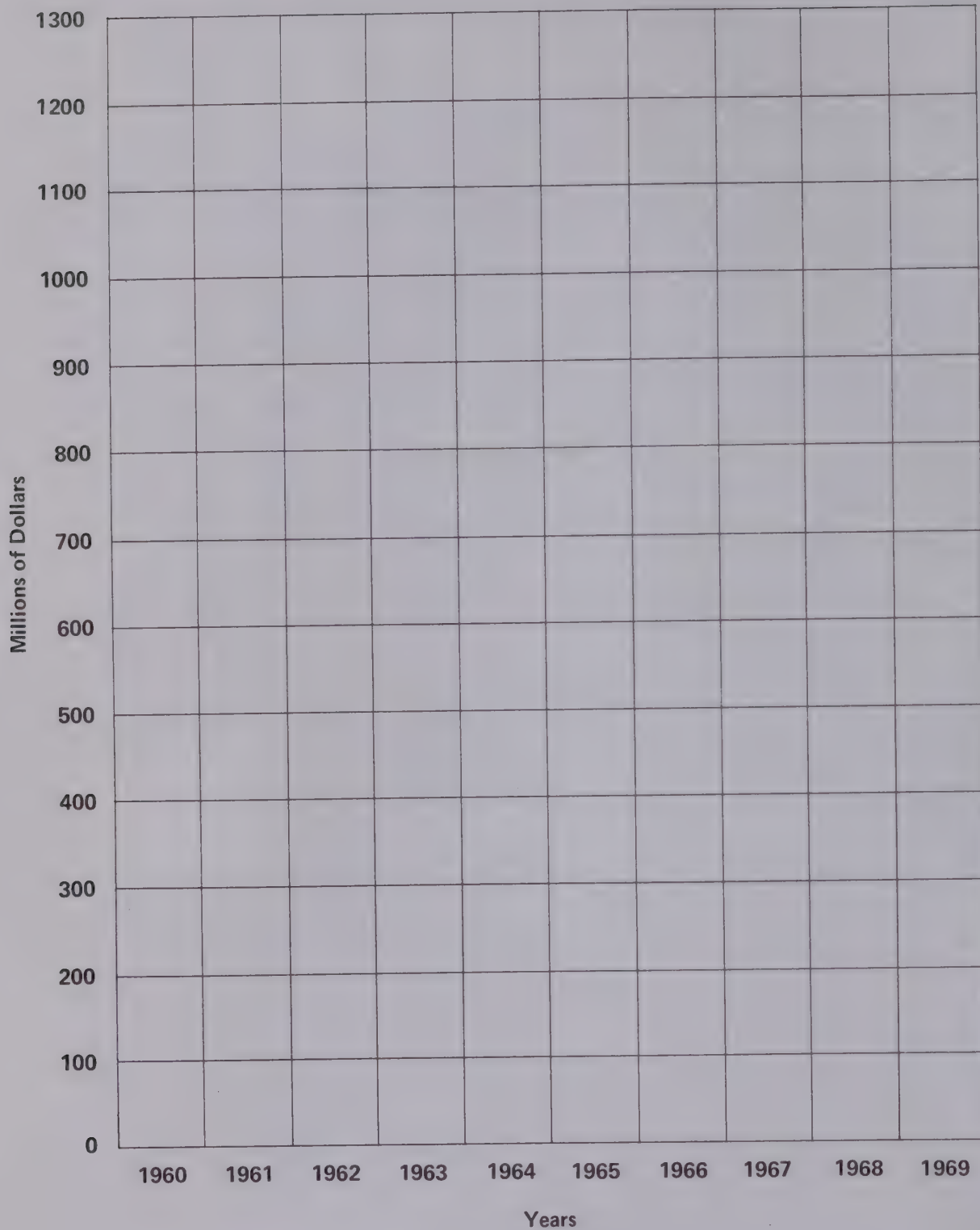
## CONCEPT SUMMARY:

\_\_\_\_\_

\_\_\_\_\_

GRAPH NO. **3**

TOTAL YEARLY SALES OF PHONOGRAPH RECORDS IN U.S.A.





Physical Science Idea 1  
Predicting  
Investigation 10

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. KEEP 'EM ROLLIN'

Problem \_\_\_\_\_

\_\_\_\_\_

Prediction \_\_\_\_\_

\_\_\_\_\_

Equipment

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Procedure \_\_\_\_\_

\_\_\_\_\_

Results—See next page for table and graph

Conclusion \_\_\_\_\_

\_\_\_\_\_

1. \_\_\_\_\_

B. THE TWO FACES OF SCIENCE

2. \_\_\_\_\_

3. \_\_\_\_\_

CONCEPT SUMMARY:

\_\_\_\_\_

TABLE NO. **1**

TIME NEEDED BY DIFFERENT BALLS TO ROLL DOWN A RAISED RUNWAY (in timer clicks)

Balls (by number or description)	Number of Clicks on Timer					
	1	2	Trials 3	4	5	Average

GRAPH NO. **1**

AVERAGE TIME NEEDED BY DIFFERENT BALLS TO ROLL DOWN A RAISED RUNWAY

Type of Ball	(In Timer Clicks)				
	0	5	10	15	20

Physical Science Idea 1  
Predicting  
Investigation 11

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. A BOY SCOUT WOULD KNOW HOW

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

B. YOU CAN'T HEAR THE BEAT?

6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
9. \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

CONCEPT SUMMARY:

\_\_\_\_\_

\_\_\_\_\_

You have completed a series of 11 investigations. They all have one idea in common. State this idea in your IDEA summary.





## Class

D25

7. \_\_\_\_\_ 8. \_\_\_\_\_

**B. IT'S TOO LATE TO DIET NOW**

9.	<i>Object</i>	<i>Weight</i>	<i>Object</i>	<i>Weight</i>	<i>Object</i>	<i>Weight</i>
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____

10. \_\_\_\_\_

**C. ARCHIMEDES IS PROUD OF YOU**

11. \_\_\_\_\_ Why? \_\_\_\_\_

\_\_\_\_\_

12. \_\_\_\_\_ 13. \_\_\_\_\_

14. \_\_\_\_\_

15.	<i>Object</i>	<i>Volume</i>	<i>Object</i>	<i>Volume</i>	<i>Object</i>	<i>Volume</i>
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____

16. \_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_  
\_\_\_\_\_

(Always record the concept summary in the IDEA Summary.)



Physical Science Idea 2  
Matter  
Investigation 2

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. LET'S START OUT DRY

1. \_\_\_\_\_ Why? \_\_\_\_\_

2. \_\_\_\_\_ Explain. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

TABLE NO. 1

RATIO OF WEIGHT TO VOLUME OF DIFFERENT SUBSTANCES

Block No.	Volume (cc)	Weight (g)	(g/cc)
1			
2			
3			
4			

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_ Explain. \_\_\_\_\_

## B. LET'S TRY IT WET

TABLE NO. **2**

### DENSITIES OF DIFFERENT LIQUIDS

Liquid No.	Weight of Graduate (g) (same in each case)	Weight of Graduate Plus Liquid (g)	Weight of Liquid (g)	Volume (cc)	Density (g/cc)

13. \_\_\_\_\_

14. \_\_\_\_\_

## C. IN CONCLUSION

15. \_\_\_\_\_ Explain. \_\_\_\_\_

16. \_\_\_\_\_

### CONCEPT SUMMARY:

---

---

(Always record the concept summary in the IDEA Summary.)

Physical Science Idea 2  
Matter  
Investigation 3

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. ANY WAY YOU SLICE IT, IT'S STILL WATER

1. \_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

TABLE NO. **1**

WEIGHT DIFFERENCE BETWEEN ICE AND WATER

	Test Tube	Test Tube With Ice	Test Tube With Water	Weight of Ice	Weight of Water	Difference Between Ice and Water
Trial 1						
Trial 2						

5. \_\_\_\_\_



TABLE NO. **2**

COMPARATIVE CLASS RESULTS: WEIGHT DIFFERENCE BETWEEN ICE AND WATER

Team Number	1	2	3	4	5	6	7	8	9	10	11	12	Average
Weight-Change Found													

6. \_\_\_\_\_

7. \_\_\_\_\_ Explain. \_\_\_\_\_

\_\_\_\_\_

8. \_\_\_\_\_

\_\_\_\_\_

CONCEPT SUMMARY:

\_\_\_\_\_

\_\_\_\_\_

(Always record the concept summary in the IDEA Summary.)

# Physical Science Idea 2

## Matter

### Investigation 4

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

#### Data Sheet

#### A. SULFUR BALLOON

TABLE NO. 1

#### WEIGHT OF A CERTAIN QUANTITY OF SULFUR

	Test Tube + Balloon	Powdered Form		Melted Form		Hardened Form	
		Test Tube + Balloon + Sulfur	Weight of Sulfur	Test Tube + Balloon + Sulfur	Weight of Sulfur	Test Tube + Balloon + Sulfur	Weight of Sulfur
Trial 1							
Trial 2							

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

TABLE NO. 2

#### COMPARATIVE CLASS RESULTS: WEIGHT-CHANGE BETWEEN POWDERED, MELTED, AND HARDENED SULFUR

Team Number	1	2	3	4	5	6	7	8	9	10	11	12	Average
Weight- Change Found													

## B. WHAT'S LEFT?

4. \_\_\_\_\_

5. \_\_\_\_\_ Explain. \_\_\_\_\_

\_\_\_\_\_

6. \_\_\_\_\_

\_\_\_\_\_

7. \_\_\_\_\_

\_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_ Explain. \_\_\_\_\_

\_\_\_\_\_

## CONCEPT SUMMARY:

\_\_\_\_\_

\_\_\_\_\_



Physical Science Idea 2  
Matter  
Investigation 5

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. STIR UP A STRANGE BREW

1. \_\_\_\_\_

TABLE NO. 1

WEIGHT-CHANGE WHEN SODIUM CARBONATE  
AND PHENOLPHTHALEIN REACT

Weight Before Mixing	Weight After Mixing	Change in Weight

2. \_\_\_\_\_

TABLE NO. 2

COMPARATIVE CLASS DATA: WEIGHT-CHANGE  
IN SODIUM CARBONATE/PHENOLPHTHALEIN REACTION

Team Number	1	2	3	4	5	6	7	8	9	10	11	12
Weight- Change												

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_ Explain. \_\_\_\_\_

\_\_\_\_\_

6. \_\_\_\_\_ Explain. \_\_\_\_\_

**B. AND YOU GET?**

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_ Explain. \_\_\_\_\_

10. \_\_\_\_\_

**CONCEPT SUMMARY:**

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. A SALTY TALE

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

B. SCIENCE FOR BREAKFAST?

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

CONCEPT SUMMARY:

\_\_\_\_\_

\_\_\_\_\_



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8 noisngifseval 100

Physical Science Idea 2  
Matter  
Investigation 7

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. THE ACID TEST

1. \_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

TABLE NO. 1

LENGTH OF RIBBON COMPARED TO  
AMOUNT OF GAS COLLECTED

Length of Magnesium Ribbon (cm)	Volume of Gas Collected (ml)

TABLE NO. 2

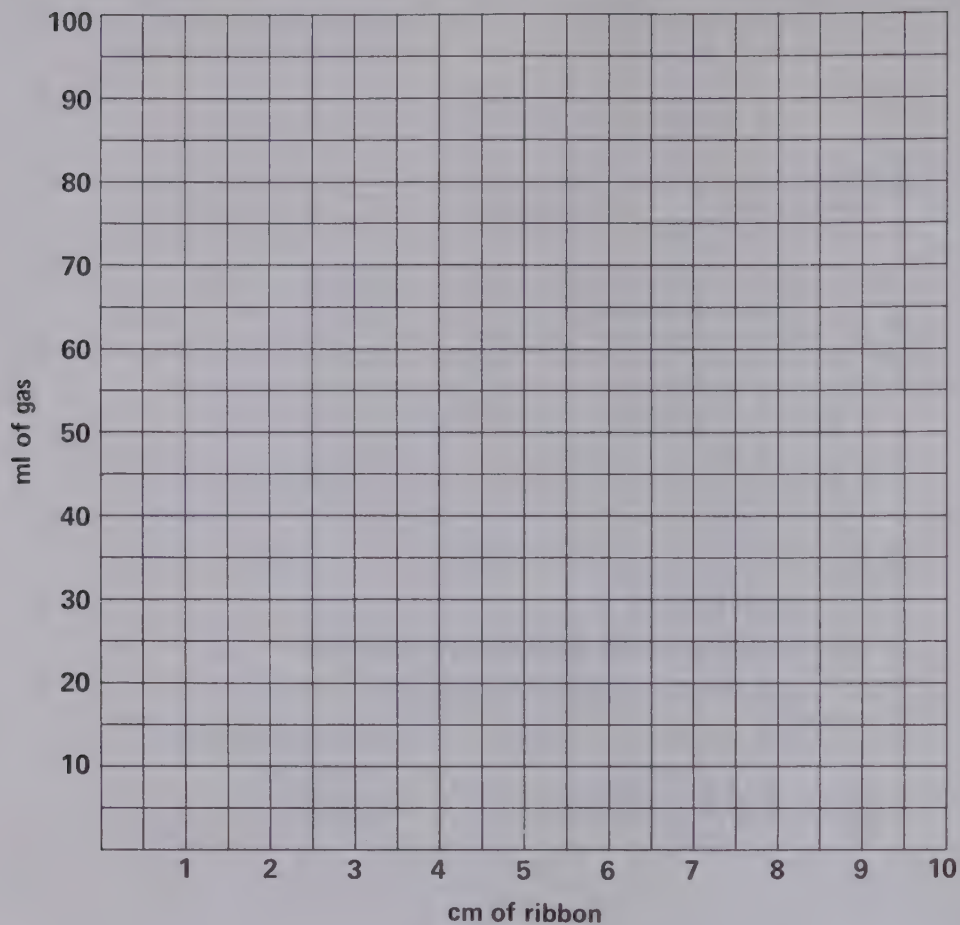
COMPARATIVE CLASS DATA: RATIO OF GAS COLLECTED TO LENGTH OF RIBBON

Team Number	1	2	3	4	5	6	7	8	9	10	11	12
Length of Magnesium Ribbon												
Volume of Gas Collected												
Ratio of Gas to Ribbon												

GRAPH NO. **1**

COMPARATIVE CLASS DATA:

RATIO OF GAS COLLECTED TO LENGTH OF RIBBON



3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

**B. WHO CARES?**

6. \_\_\_\_\_ 7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

**C. MEANWHILE, BACK IN THE TEST TUBE**

10. \_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_  
\_\_\_\_\_

Physical Science Idea 2  
Matter  
Investigation 8

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. BREAK IT UP

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

TABLE NO. **1**

VOLUMES OF TWO GASES RESULTING FROM ELECTROLYSIS OF WATER

	Time Started	Time Ending	Total Running Time	Volume of Gas: Positive Electrode	Volume of Gas: Negative Electrode	Ratio of Gas Volumes
1st Trial						
2nd Trial						

B. MEANWHILE, BACK AT THE TUBES

6. \_\_\_\_\_ 7. \_\_\_\_\_
8. \_\_\_\_\_ Explain. \_\_\_\_\_
9. \_\_\_\_\_ 10. \_\_\_\_\_
11. \_\_\_\_\_ Explain. \_\_\_\_\_
12. \_\_\_\_\_ Why? \_\_\_\_\_
13. \_\_\_\_\_ Why? \_\_\_\_\_

C. WHO NEEDS GAS?

14. \_\_\_\_\_



TABLE NO. **2**

## COMPARATIVE CLASS DATA: VOLUMES OF GASES AT POSITIVE AND NEGATIVE ELECTRODES

Team Number	Number of Batteries Used	Total Running Time	Volumes of Gas		Ratio of Gas Volumes
			Positive Electrode	Negative Electrode	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

15. \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

18. \_\_\_\_\_

**D. HOW'S YOUR PREDICTION?**

19. \_\_\_\_\_ 20. \_\_\_\_\_

21. \_\_\_\_\_

22. \_\_\_\_\_

23. \_\_\_\_\_ Why? \_\_\_\_\_

24. \_\_\_\_\_

25. \_\_\_\_\_ Explain. \_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_

Physical Science Idea 2  
Matter  
Investigation 9

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. TAKE A POWDER

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_ Explain. \_\_\_\_\_

B. A REAL FIZZY PARTY

6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_ Why? \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_ Explain. \_\_\_\_\_

C. THE SAME GLOWING THING

11. \_\_\_\_\_
12. \_\_\_\_\_

13. \_\_\_\_\_
14. \_\_\_\_\_
15. \_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_

Physical Science Idea 2  
Matter  
Investigation 10

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. AYE, THERE'S THE RUB

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_ 13. \_\_\_\_\_ 14. \_\_\_\_\_

B. HOW DO YOU CHARGE?

15. \_\_\_\_\_
16. \_\_\_\_\_ 17. \_\_\_\_\_
18. \_\_\_\_\_
19. \_\_\_\_\_
- \_\_\_\_\_

C. TOO FAST TO COUNT

20. \_\_\_\_\_



21. \_\_\_\_\_

22. \_\_\_\_\_

23. \_\_\_\_\_

24. \_\_\_\_\_

25. \_\_\_\_\_

26. \_\_\_\_\_

27. \_\_\_\_\_

28. \_\_\_\_\_

#### D. CLOUDS IN YOUR CHAMBER

29. \_\_\_\_\_

30. \_\_\_\_\_

31. \_\_\_\_\_

32. \_\_\_\_\_

33. \_\_\_\_\_

34. \_\_\_\_\_

#### E. WHAT'S LEFT AFTER THE FLASH?

(See Graph No. 1 on next page)

35. \_\_\_\_\_

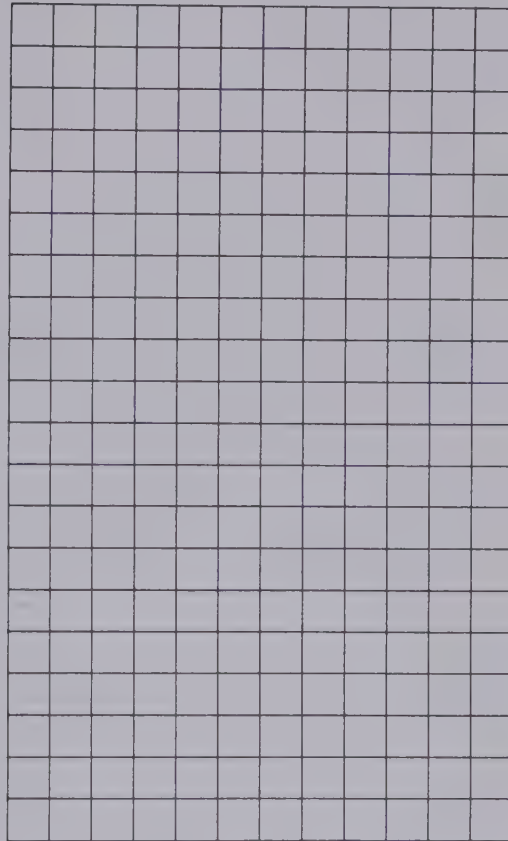
Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

GRAPH NO. **1**

REMAINING RADIOACTIVE MATERIAL



36. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

37. \_\_\_\_\_

\_\_\_\_\_

38. \_\_\_\_\_

\_\_\_\_\_

39. \_\_\_\_\_  
\_\_\_\_\_

40. \_\_\_\_\_  
\_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_  
\_\_\_\_\_

Physical Science Idea 2  
Matter  
Investigation 11

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. SCIENCE IS MARBLES?

1. \_\_\_\_\_
2. \_\_\_\_\_

TABLE NO. 1

NUMBERS OF LIGHT AND DARK MARBLES  
KNOCKED OUT OF CERTAIN COMBINATIONS ON VARIOUS TRIALS

Trial	Combination 1		Combination 2		Combination 3	
	Light	Dark	Light	Dark	Light	Dark
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						



**B. WHAT CAME OUT OF WHAT WAS IN?**

**TABLE NO. 2**

**AVERAGE NUMBERS OF LIGHT AND DARK MARBLES  
KNOCKED OUT OF CERTAIN COMBINATIONS**

Combination 1		Combination 2		Combination 3	
Light	Dark	Light	Dark	Light	Dark

3. \_\_\_\_\_

4. \_\_\_\_\_

**C. SO IT'S LIKE THIS**

5. \_\_\_\_\_

\_\_\_\_\_

6. \_\_\_\_\_

\_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_

You have completed a series of 11 investigations. They all have one idea in common. State this idea in your IDEA Summary.

Physical Science Idea 3  
Energy  
Investigation 1

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. PUT SOME MUSCLE IN IT

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_ Explain. \_\_\_\_\_

7. \_\_\_\_\_ Explain. \_\_\_\_\_

B. WORK IS STORED IN BOXES?

8. \_\_\_\_\_

9. \_\_\_\_\_ Explain. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

C. WORK UP A SWEAT

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_ Explain. \_\_\_\_\_

\_\_\_\_\_

17. \_\_\_\_\_ 18. \_\_\_\_\_

19. \_\_\_\_\_

\_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_

(Always record the concept summary in the IDEA Summary.)

Physical Science Idea 3  
Energy  
Investigation 2

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. SEE THE LIGHT

1. \_\_\_\_\_ 2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

B. FEEL THE HEAT

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

C. TAKE CHARGE

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_ Explain. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_



**CONCEPT SUMMARY:**

---

---

(Always record the concept summary in the IDEA Summary.)

Physical Science Idea 3  
Energy  
Investigation 3

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. HAUL AWAY, MEN

1. \_\_\_\_\_
2. \_\_\_\_\_ Explain. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_

B. SEESAW, MARGERY DAW

11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_
15. \_\_\_\_\_
16. \_\_\_\_\_
17. \_\_\_\_\_
18. \_\_\_\_\_
19. \_\_\_\_\_

20. \_\_\_\_\_
21. \_\_\_\_\_
22. \_\_\_\_\_
23. \_\_\_\_\_
24. \_\_\_\_\_
25. \_\_\_\_\_
- \_\_\_\_\_
26. \_\_\_\_\_
27. \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_

(Always record the concept summary in the IDEA Summary.)

Physical Science Idea 3  
Energy  
Investigation 4

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. IT'S ALL IN THE ANGLES

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**B. WHO GETS TO WATCH THE MACHINE?**

15. \_\_\_\_\_

\_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

21. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_



Physical Science Idea 3  
Energy  
**Investigation 5**

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**Data Sheet**

**A. ON THE HOT SPOT**

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_ 4. \_\_\_\_\_

5. \_\_\_\_\_ 6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

**B. ROUND AND ROUND**

9. \_\_\_\_\_

10. \_\_\_\_\_

**C. FASTER AND FASTER**

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_

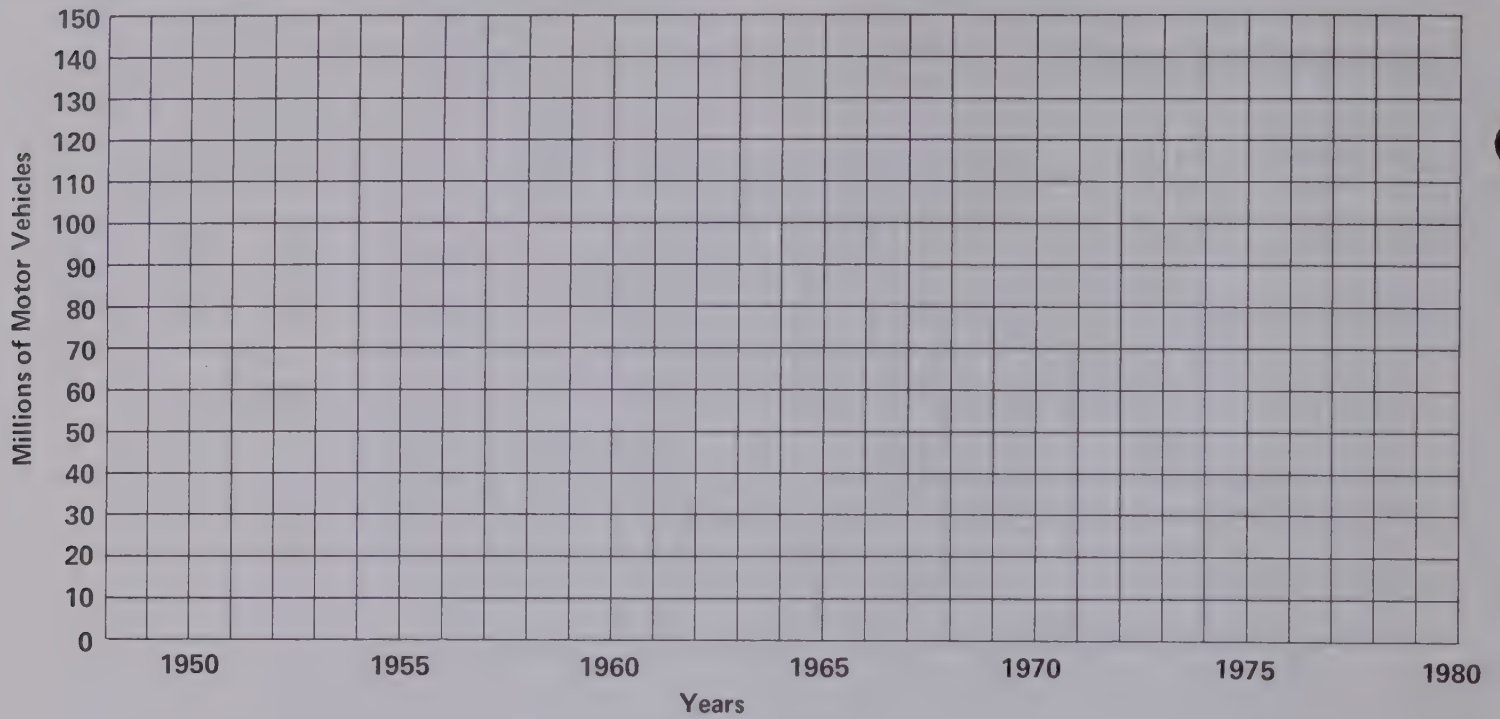
16. \_\_\_\_\_

17. \_\_\_\_\_

## D. ALWAYS WE HAVE COMPLICATIONS

GRAPH NO. 1

TOTAL MOTOR VEHICLES IN THE UNITED STATES (by 5-year intervals; in millions)



18. \_\_\_\_\_ 19. \_\_\_\_\_

20. \_\_\_\_\_ Explain. \_\_\_\_\_

21. \_\_\_\_\_

22. \_\_\_\_\_

23. \_\_\_\_\_

## E. MEANWHILE, BACK UNDER THE HOOD

24. \_\_\_\_\_

25. \_\_\_\_\_

CONCEPT SUMMARY:

\_\_\_\_\_  
\_\_\_\_\_

Physical Science Idea 3  
Energy  
Investigation 6

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. THERE'S BEEN SOME CHANGES MADE

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_ Explain. \_\_\_\_\_

B. FIRE AT SEA

8. \_\_\_\_\_ Explain. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

**C. IN OR OUT?**

**TABLE NO. 1**

**TEMPERATURE CHANGE WHEN VARIOUS CHEMICALS ARE MIXED WITH WATER**

Number of Chemical	Temperature ( $^{\circ}\text{C}$ )		
	Water alone	Mixture of water and chemical	Degrees of change + or -
1			
2			
3			
4			
5			

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

18. \_\_\_\_\_

**CONCEPT SUMMARY:**

Physical Science Idea 3  
Energy  
Investigation 7

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**Data Sheet**

**A. A PICTURE OF HEAT?**

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

**B. IT CAME FROM OUTER SPACE**

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

**C. IT SPREADS LIKE MEASLES**

12. \_\_\_\_\_

13. \_\_\_\_\_



14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_ Why? \_\_\_\_\_

**CONCEPT SUMMARY:**

Physical Science Idea 3  
Energy  
Investigation 8

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. KEEP IT AWAY FROM ME

1. \_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

3. \_\_\_\_\_ Why not? \_\_\_\_\_

\_\_\_\_\_

4. \_\_\_\_\_ 5. \_\_\_\_\_

TABLE NO. 1

GEIGER TUBE CLICKS PER MINUTE AT SELECTED DISTANCES FROM RADIOACTIVE SAMPLE

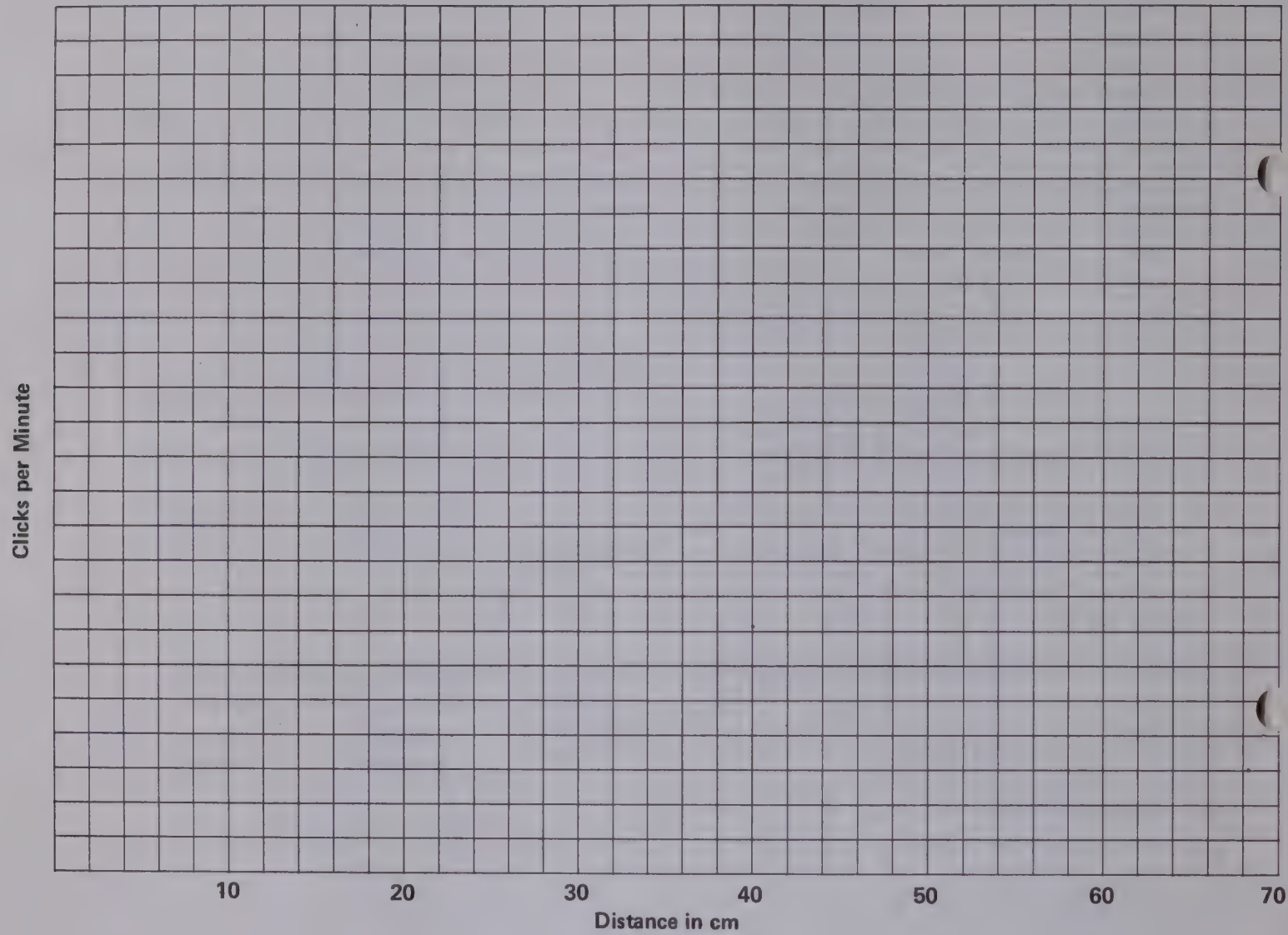
	Clicks per Minute				
	64 cm	32 cm	16 cm	8 cm (estimate)	4 cm (estimate)
Trial 1					
Trial 2					
Trial 3					
Trial 4					
Average					

6. \_\_\_\_\_ Why? \_\_\_\_\_

\_\_\_\_\_

GRAPH NO. 1

GEIGER TUBE CLICKS PER MINUTE COMPARED TO DISTANCE OF TUBE FROM RADIOACTIVE SAMPLE



- 7. \_\_\_\_\_
- 8. \_\_\_\_\_
- 9. \_\_\_\_\_
- 10. \_\_\_\_\_
- 11. \_\_\_\_\_
- \_\_\_\_\_
- 12. \_\_\_\_\_
- \_\_\_\_\_

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**B. STOP THE INVADERS**

13. \_\_\_\_\_

**TABLE NO. 2****NUMBER OF CLICKS PER MINUTE (SAMPLE AT 4 CM FROM GEIGER TUBE)**

	Number of Pieces of Cardboard				
	0	4	8	16	32
<b>Trial 1</b>					
<b>Trial 2</b>					
<b>Trial 3</b>					
<b>Trial 4</b>					
<b>Average</b>					

14. \_\_\_\_\_

**GRAPH NO. 2 (See page D66)**

15. \_\_\_\_\_ 16. \_\_\_\_\_

17. \_\_\_\_\_

18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

**C. DECISIONS, DECISIONS**

21. \_\_\_\_\_

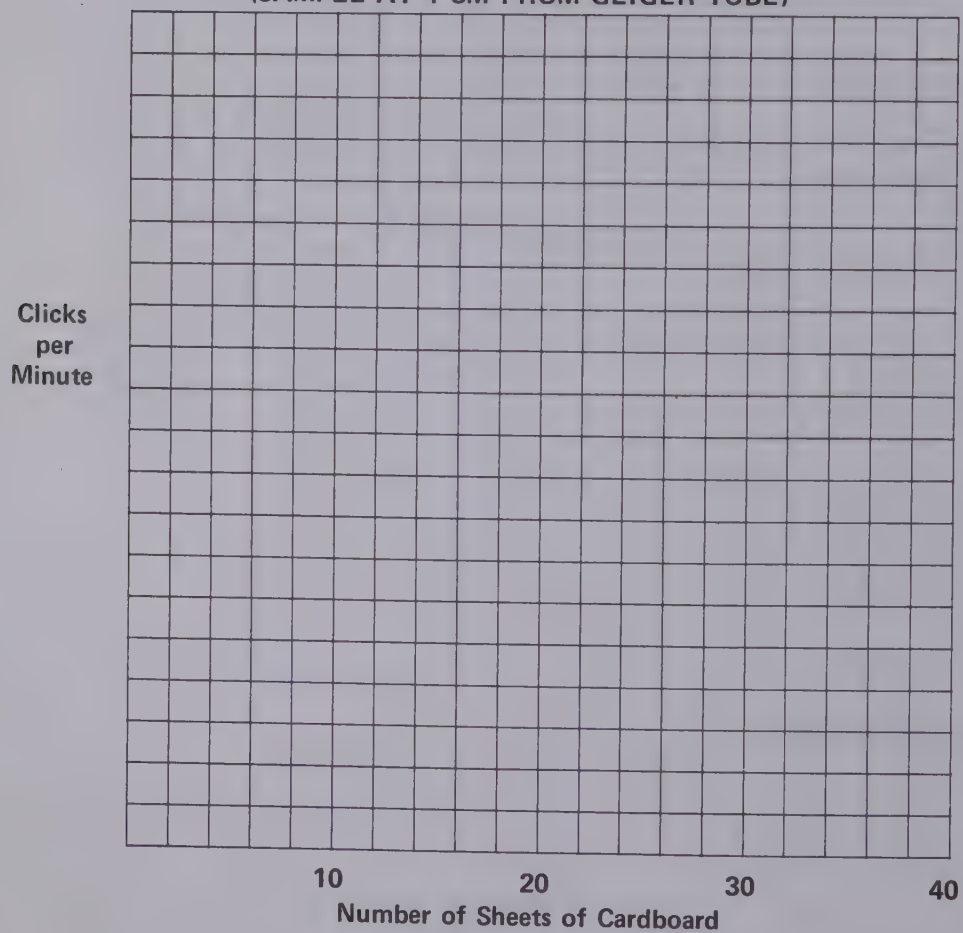
22. \_\_\_\_\_

23. \_\_\_\_\_

24. \_\_\_\_\_

CONCEPT SUMMARY:

**GRAPH NO. 2**  
**NUMBER OF CLICKS PER MINUTE**  
**FOR DIFFERENT THICKNESSES OF CARDBOARD SHIELDING**  
**(SAMPLE AT 4 CM FROM GEIGER TUBE)**





Physical Science Idea 3  
Energy  
Investigation 9

Name \_\_\_\_\_

Date \_\_\_\_\_

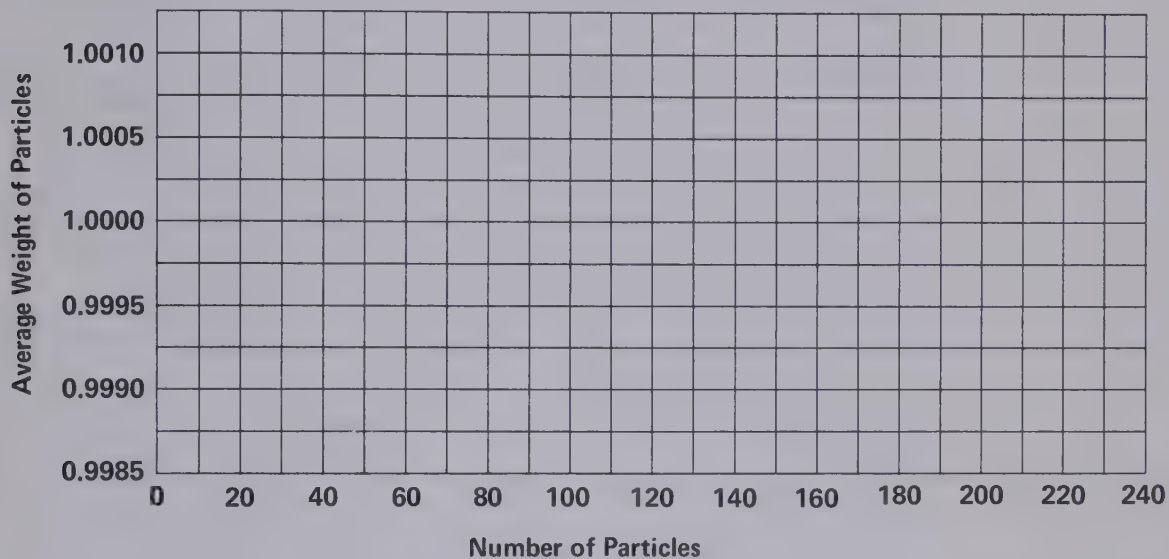
Class \_\_\_\_\_

Data Sheet

A. THERE'S SOMETHING MISSING

GRAPH NO. 1

AVERAGE WEIGHT OF NUCLEAR PARTICLES IN SELECTED ATOMS



1. \_\_\_\_\_

2. \_\_\_\_\_ 3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

B. NOW PUT IT TOGETHER

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_ Explain. \_\_\_\_\_

12. \_\_\_\_\_ Explain. \_\_\_\_\_

13. \_\_\_\_\_ 14. \_\_\_\_\_

15. \_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

You have completed a series of 9 investigations. They all have one idea in common. State this idea in your IDEA Summary.

Physical Science Idea 4  
Interaction  
**Investigation 1**

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**Data Sheet**

**A. THAT'S NOT HOW WE PLANNED IT**

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

**B. THE AIR DOES IT**

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

**C. OUT OF THIS WORLD**

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_ 10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**D. EVERYTHING IS IN THE ACT**

14. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_  
\_\_\_\_\_

(Always record the concept summary in the IDEA Summary.)

# Physical Science Idea 4

## Interaction

### Investigation 2

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

#### Data Sheet

#### A. WET OR DRY?

1. \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**TABLE NO. 1**

TEMPERATURE OF SAND AND WATER RECEIVING THE SAME HEAT,  
AT 5-MINUTE INTERVALS

	Team No.	Temperature				
		Start	5 Min.	10 Min.	15 Min.	20 Min.
Sand						
Water						

2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_



TABLE NO. **2**TEMPERATURE OF SAND AND WATER AS THEY COOL FROM 40°C,  
AT 5-MINUTE INTERVALS

	Team No.	Temperature				
		Start	5 Min.	10 Min.	15 Min.	20 Min.
Sand						
Water						

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

**B. HIGH OR LOW?**

11. \_\_\_\_\_

Name

Date

Class

TABLE NO. 3

TEMPERATURE REACHED BY A PAN OF SAND WHEN HEATED BY A  
LAMP SHINING AT DIFFERENT ANGLES TO THE SURFACE OF THE SAND

Team	Light Angle	Temperature	
		Start	After 5 min.
	0° (from the side)		
	0°		
	0°		
	0°		
	30°		
	30°		
	30°		
	30°		
	60°		
	60°		
	60°		
	60°		
	90° (from directly overhead)		
	90°		
	90°		
	90°		

12. \_\_\_\_\_  
\_\_\_\_\_

13. \_\_\_\_\_  
\_\_\_\_\_

**C. FULL OF HOT AIR**

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

**D. HEAVY OR LIGHT?**

21. \_\_\_\_\_  
\_\_\_\_\_

22. \_\_\_\_\_

23. \_\_\_\_\_  
\_\_\_\_\_

24. \_\_\_\_\_

25. \_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**E. YOU CAN'T GO STRAIGHT ON A SPHERE**

26. \_\_\_\_\_

27. \_\_\_\_\_

28. \_\_\_\_\_

29. \_\_\_\_\_

30. \_\_\_\_\_

31. \_\_\_\_\_

32. \_\_\_\_\_

33. \_\_\_\_\_

34. \_\_\_\_\_

35. \_\_\_\_\_

**CONCEPT SUMMARY:**

(Always record the concept summary in the IDEA Summary.)





Physical Science Idea 4  
Interaction  
**Investigation 3**

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**Data Sheet**

**A. CLEAN HANDS FOR SCIENCE**

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

**B. WET WIND, DRY WIND**

4. \_\_\_\_\_

\_\_\_\_\_

5. \_\_\_\_\_

\_\_\_\_\_

6. \_\_\_\_\_

\_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

**C. HOT OR COLD**

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

17. \_\_\_\_\_

18. \_\_\_\_\_

\_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

\_\_\_\_\_

21. \_\_\_\_\_

\_\_\_\_\_

#### **D. WATER AND YOU**

22. \_\_\_\_\_

23. \_\_\_\_\_

24. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

25. \_\_\_\_\_

26. \_\_\_\_\_

27. \_\_\_\_\_

#### **CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_

(Always record the concept summary in the IDEA Summary)

Physical Science Idea 4  
Interaction  
**Investigation 4**

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**Data Sheet**

**A. MOUNTAINS WILL CRUMBLE**

1. \_\_\_\_\_

2. \_\_\_\_\_ 3. \_\_\_\_\_

4. \_\_\_\_\_

**B. DON'T LET THEM GRIND YOU DOWN**

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

**C. POWERFUL BEANS**

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

#### D. CHEMICAL WARFARE

17. \_\_\_\_\_

\_\_\_\_\_

18. \_\_\_\_\_

\_\_\_\_\_

19. \_\_\_\_\_

\_\_\_\_\_

#### E. THE GOOD EARTH

20. \_\_\_\_\_

\_\_\_\_\_

21. \_\_\_\_\_

\_\_\_\_\_

22. \_\_\_\_\_

\_\_\_\_\_

#### CONCEPT SUMMARY:

\_\_\_\_\_

\_\_\_\_\_

Physical Science Idea 4  
Interaction  
**Investigation 5**

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**Data Sheet**

**A. THE SALT OF THE EARTH**

1. \_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

\_\_\_\_\_

**B. IF ROCKS COULD TALK**

7. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

8. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

9. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

**C. IT ALL GOES ON UNDERFOOT**

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_

Physical Science Idea 4  
Interaction  
**Investigation 6**

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**Data Sheet**

**A. TRY IT WET**

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

**B. TRY IT DRY**

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

**C. TRY IT MIXED**

8. \_\_\_\_\_

9. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

15. \_\_\_\_\_

\_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

18. \_\_\_\_\_

\_\_\_\_\_

19. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_

Physical Science Idea 4  
Interaction  
**Investigation 7**

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**Data Sheet**

**A. SURF IN THE MOUNTAINS?**

1. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

3. \_\_\_\_\_

\_\_\_\_\_

**B. MELT AN ICEBERG**

4. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. \_\_\_\_\_

\_\_\_\_\_

6. \_\_\_\_\_

\_\_\_\_\_

**TABLE NO. 1**  
**DEPTH IN WATER OF AN ICE-COVERED BOARD**

Amount of Ice Remaining	Depth of Board (cm)
100%	
50%	
0%	

7. \_\_\_\_\_

8. \_\_\_\_\_

\_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

**C. PUT ON THE PRESSURE**

11. \_\_\_\_\_

\_\_\_\_\_

12. \_\_\_\_\_ 13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

18. \_\_\_\_\_

\_\_\_\_\_



Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**D. WHEN IT'S GONE, IT'S GONE**

19. \_\_\_\_\_ 20. \_\_\_\_\_

21. \_\_\_\_\_

22. \_\_\_\_\_ Why? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

23. \_\_\_\_\_

\_\_\_\_\_

24. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_



Physical Science Idea 4  
Interaction  
**Investigation 8**

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**Data Sheet**

**A. MY WAVE CAN BEAT YOUR WAVE**

1. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

\_\_\_\_\_

5. \_\_\_\_\_

\_\_\_\_\_

**B. GET THE MESSAGE**

6. \_\_\_\_\_

\_\_\_\_\_

7. \_\_\_\_\_

\_\_\_\_\_

8. \_\_\_\_\_

\_\_\_\_\_

9. \_\_\_\_\_

\_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_ 14. \_\_\_\_\_

**C. WHAT ABOUT THE REST OF US?**

15. \_\_\_\_\_

Why? \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

**CONCEPT SUMMARY:**

Physical Science Idea 4  
Interaction  
**Investigation 9**

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**Data Sheet**

**A. TURN ON THE HEAT**

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_

4. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**B. THE SHORTER THE COOLER**

5. \_\_\_\_\_ Why? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**TABLE NO. 2**

**HOURS OF SUNLIGHT, DAY BY DAY DURING ONE WEEK**

Date	Sunrise	Sunset	Hours of Sunlight



6. \_\_\_\_\_

7. \_\_\_\_\_ Why? \_\_\_\_\_

### C. FIGURE THE ANGLES

8. \_\_\_\_\_

9. \_\_\_\_\_

**TABLE NO. 3**  
**LENGTH OF THE SHADOW OF A FIXED POLE AT**  
**\_\_\_\_\_ EACH DAY FOR 7 CONSECUTIVE DAYS**

Date	Length of Shadow (cm)

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

### D. WHAT, DARK ALREADY?

13. \_\_\_\_\_

14. \_\_\_\_\_ 15. \_\_\_\_\_ 16. \_\_\_\_\_

Name

Date

Class

17. \_\_\_\_\_

18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

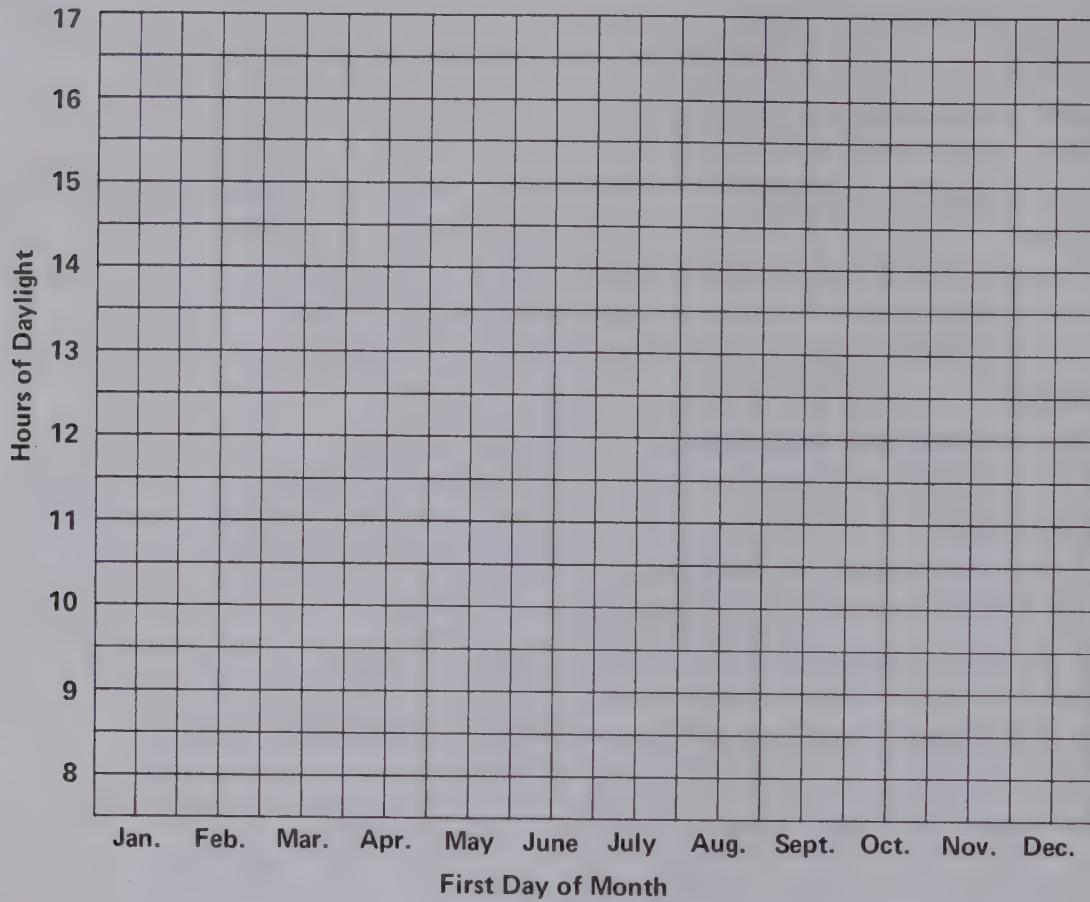
TABLE NO. **4a**

## HOURS OF DAYLIGHT IN SAN FRANCISCO

Date	Hours of Daylight
Jan. 1	
Feb. 1	
Mar. 1	
Apr. 1	
May 1	
June 1	
July 1	
Aug. 1	
Sept. 1	
Oct. 1	
Nov. 1	
Dec. 1	

GRAPH NO. **1**

HOURS OF DAYLIGHT IN SAN FRANCISCO



21. \_\_\_\_\_

22. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

CONCEPT SUMMARY:

\_\_\_\_\_

\_\_\_\_\_

Physical Science Idea 4  
Interaction  
**Investigation 10**

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**Data Sheet**

**A. HOW HIGH THE MOON?**

1. \_\_\_\_\_

**TABLE NO. 1**

	Distance of the Dowel (from Corner A)	Distance from Clip C to Corner C
Position 1		
Position 2		
Position 3		
Position 4		
Position 5		
Position 6 (unknown)		
Position 7 (unknown)		

**GRAPH NO. 1**

Distance of Dowel


Distance from Clip C to Corner C

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_ Explain. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_ Explain. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

**B. YOU CAN'T GET THERE FROM HERE**

10. \_\_\_\_\_

11. \_\_\_\_\_ 12. \_\_\_\_\_

**TABLE NO. 2**  
**DISTANCES FROM TARGETS TO BASE LINE**

Target	Distance to R-L Line
A	
B	
C	
D	

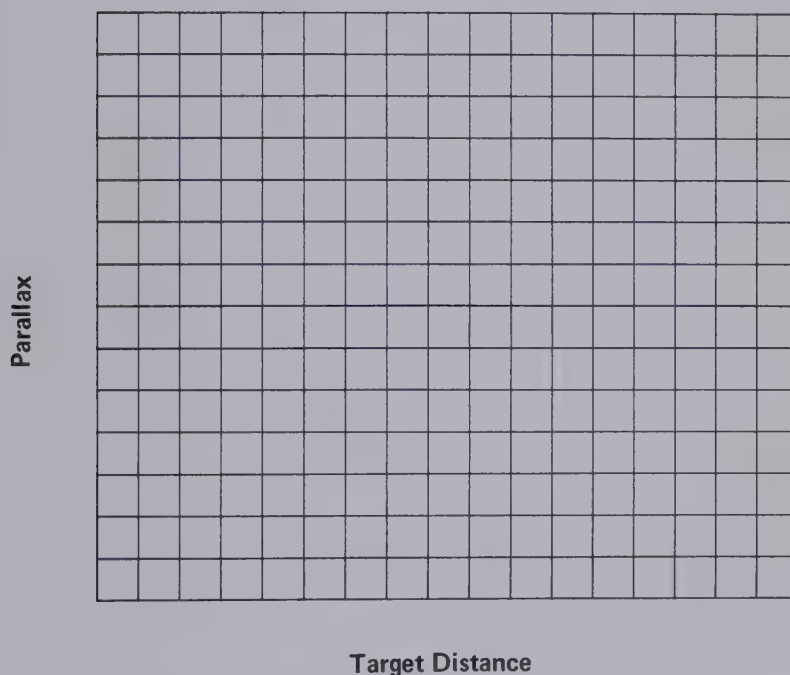
Name

Date

Class

**TABLE NO. 3****PARALLAX FOR DIFFERENT TARGETS**

Position	Line Numbers Seen Behind Targets			
	A	B	C	D
R				
L				
Difference L-R				

**GRAPH NO. 2****TARGET DISTANCE COMPARED TO PARALLAX**

13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_



**C. COUNTDOWNS ADD UP**

17. \_\_\_\_\_

18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

**D. THE MOON IS RIGHT THERE**

21. \_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_

Physical Science Idea 4  
Interaction  
**Investigation 11**

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**Data Sheet**

**A. IT'S THE GLOW**

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

**B. SCIENCE IS RAINBOWS?**

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

### C. EVERYWHERE THE SAME THING

18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

### CONCEPT SUMMARY:

Physical Science Idea 4  
Interaction  
**Investigation 12**

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**Data Sheet**

**A. TILT!**

1. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

\_\_\_\_\_

**B. WHEN THE DAYS DWINDLE DOWN**

6. \_\_\_\_\_

**TABLE NO. 2**

**SEASONAL VARIATION IN AMOUNT OF DAYLIGHT**

Position	1	2	3	4
Day Length				
Season				

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_ 10. \_\_\_\_\_

11. \_\_\_\_\_
12. \_\_\_\_\_ 13. \_\_\_\_\_
14. \_\_\_\_\_
15. \_\_\_\_\_
16. \_\_\_\_\_
17. \_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_

You have completed a series of 12 investigations. They all have one idea in common. State this idea in your IDEA Summary.

Physical Science Idea 5  
Technology  
Investigation 1

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. PUSH THE BUTTON

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

B. BLOW HOT AND COLD

4. \_\_\_\_\_

\_\_\_\_\_

5. \_\_\_\_\_

\_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

C. DON'T STOP CIRCULATING

8. \_\_\_\_\_

\_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

\_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_



**CONCEPT SUMMARY:**

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(Always record the concept summary in the IDEA Summary.)

Physical Science Idea 5  
Technology  
Investigation 2

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. FROSTY FINGERS

TABLE NO. 1

PERCENTS OF WEIGHT LOST IN MELTING OF WRAPPED AND UNWRAPPED ICE CUBES

	Starting Weight	Weight After 10 Min.	Weight Lost	Percent of Starting Weight Lost
Wrapped Ice Cube				
Unwrapped Ice Cube				

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

B. INTO THE FLAMES

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10. \_\_\_\_\_  
\_\_\_\_\_

11. \_\_\_\_\_  
\_\_\_\_\_

12. \_\_\_\_\_  
\_\_\_\_\_

13. \_\_\_\_\_ Why? \_\_\_\_\_  
\_\_\_\_\_

**C. SPACE IS CROWDED**

14. \_\_\_\_\_

15. \_\_\_\_\_  
\_\_\_\_\_

16. \_\_\_\_\_  
\_\_\_\_\_

17. \_\_\_\_\_  
\_\_\_\_\_

Name

Date

Class

**D. LIGHT THE LAMP**

18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

21. \_\_\_\_\_

22. \_\_\_\_\_

23. \_\_\_\_\_

24. \_\_\_\_\_

25. \_\_\_\_\_

26. \_\_\_\_\_

27. \_\_\_\_\_

28. \_\_\_\_\_

**CONCEPT SUMMARY:**

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(Always record the concept summary in the IDEA Summary.)

Physical Science Idea 5  
Technology  
Investigation 3

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. IT'S UNDERFOOT

1. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. \_\_\_\_\_  
\_\_\_\_\_
6. \_\_\_\_\_ 7. \_\_\_\_\_

B. STUCK UP

8. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
9. \_\_\_\_\_



10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

13. \_\_\_\_\_

\_\_\_\_\_

14. \_\_\_\_\_

\_\_\_\_\_

### C. IT'S NOT FOR REAL

15. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

16. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

17. \_\_\_\_\_ Explain. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### CONCEPT SUMMARY:

\_\_\_\_\_

\_\_\_\_\_

(Always record the concept summary in the IDEA Summary.)

Physical Science Idea 5  
Technology  
Investigation 4

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. TURN IT ON

1. \_\_\_\_\_ 2. \_\_\_\_\_

3. \_\_\_\_\_ 4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

B. SALT WATER POWER

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_ Explain. \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

C. ENERGY MUST ACT

18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

21. \_\_\_\_\_

22. \_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_

Physical Science Idea 5  
Technology  
Investigation 5

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. TURN ON THE JUICE

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

B. MAKE IT MORE COMPLICATED

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

C. DON'T GET CONFUSED

13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

18. \_\_\_\_\_

19. \_\_\_\_\_

**D. NOTHING IS FOR FREE**

20. \_\_\_\_\_

21. \_\_\_\_\_

22. \_\_\_\_\_

23. \_\_\_\_\_

24. \_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_

Physical Science Idea 5  
Technology  
**Investigation 6**

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

**Data Sheet**

**A. COMING OR GOING?**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_ Explain. \_\_\_\_\_

**B. AROUND SHE GOES**

14. \_\_\_\_\_
15. \_\_\_\_\_
16. \_\_\_\_\_
17. \_\_\_\_\_



**C. DOES ELECTRICITY SMELL?**

18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

21. \_\_\_\_\_

22. \_\_\_\_\_

**D. BACK TO WORK**

23. \_\_\_\_\_

24. \_\_\_\_\_

25. \_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_

# Physical Science Idea 5 Technology Investigation 7

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

## Data Sheet

### A. ALL ABOARD!

#### TABLE NO. 1

#### THE BUOYANT FORCE

Object Number	1	2	3	4	5	6
Description						
Measurement No. 1 Weight in Air						
Measurement No. 3 Weight in Water						
Weight-Change						
Measurement No. 4 Water Level Object in Water						
Measurement No. 2 Water Level Before Lowering Object	50 ml	50 ml	50 ml	50 ml	50 ml	50 ml
Vol. of Water						

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_
5. \_\_\_\_\_

**B. UP, UP, AND AWAY!**

6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_
15. \_\_\_\_\_
16. \_\_\_\_\_
17. \_\_\_\_\_ 18. \_\_\_\_\_
19. \_\_\_\_\_ 20. \_\_\_\_\_
21. \_\_\_\_\_ 22. \_\_\_\_\_
23. \_\_\_\_\_ 24. \_\_\_\_\_
25. \_\_\_\_\_ 26. \_\_\_\_\_
27. \_\_\_\_\_ 28. \_\_\_\_\_

Name

Date

Class

**C. IT'S THE STOP AT THE END**

29. \_\_\_\_\_

30. \_\_\_\_\_

31. \_\_\_\_\_

32. \_\_\_\_\_

**D. SOMEHOW WE GET THERE**

33. \_\_\_\_\_

34. \_\_\_\_\_

35. \_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_  
\_\_\_\_\_



Physical Science Idea 5  
Technology  
Investigation 8

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

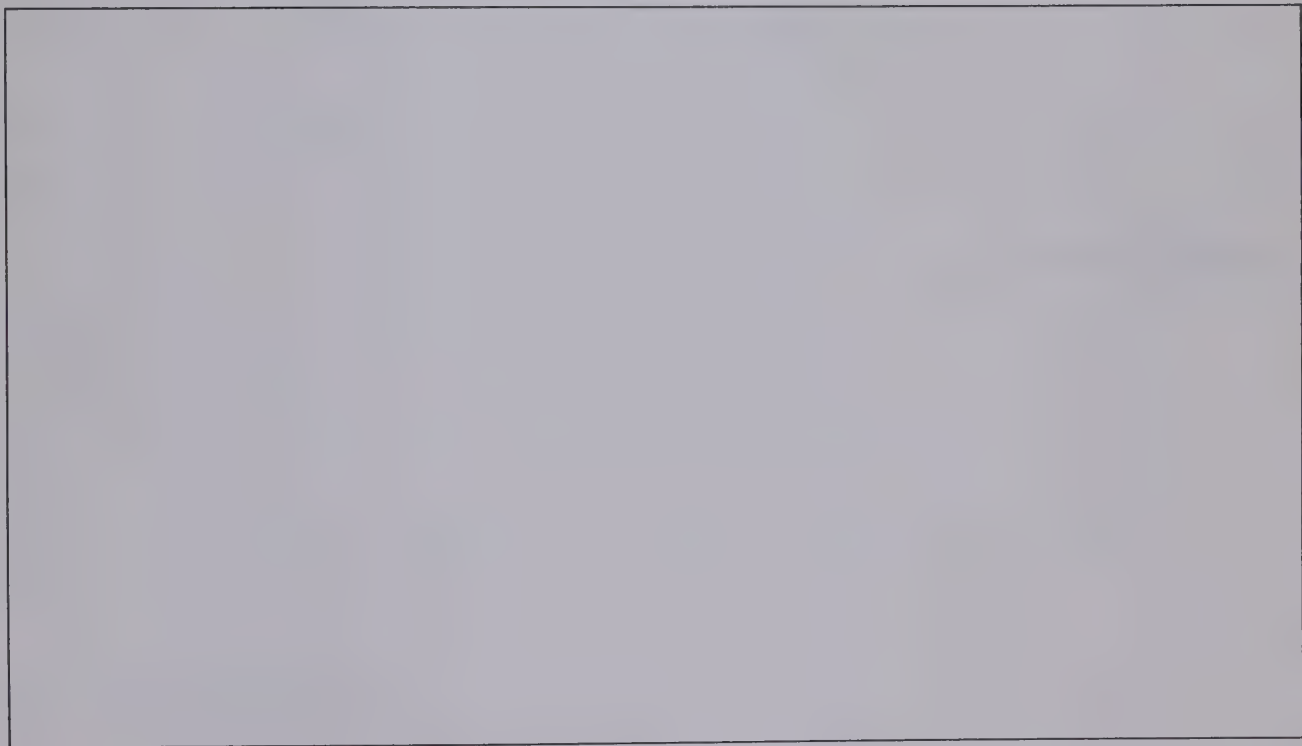
A. CLICKETY CLICK

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

SENDING-RECEIVING LABELED BLOCK DIAGRAM



4. \_\_\_\_\_

5. \_\_\_\_\_



**B. WHO EVER HEARD AN ELECTRON?**

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

**C. CUT IT DOWN TO SIZE**

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_  
\_\_\_\_\_

Physical Science Idea 5  
Technology  
Investigation 9

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. SOUND YOUR NOTE

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

B. MY RESISTANCE IS LOW

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

18. \_\_\_\_\_

19. \_\_\_\_\_
20. \_\_\_\_\_
21. \_\_\_\_\_
22. \_\_\_\_\_

**C. SQUEEZE ME GENTLY**

23. \_\_\_\_\_
24. \_\_\_\_\_
25. \_\_\_\_\_
26. \_\_\_\_\_
27. \_\_\_\_\_
28. \_\_\_\_\_
- \_\_\_\_\_

**D. VIBRATE A COFFEE CUP LID?**

29. \_\_\_\_\_
30. \_\_\_\_\_
31. \_\_\_\_\_ Explain. \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
32. \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
33. \_\_\_\_\_
34. \_\_\_\_\_

Name

Date

Class

**E. DON'T CALL ME, I'LL CALL YOU**

35. \_\_\_\_\_

36. \_\_\_\_\_

37. \_\_\_\_\_

38. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_



Physical Science Idea 5  
Technology  
Investigation 10

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

**A. BOXES, LITTLE BOXES**

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

**B. LET'S FLIP**

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

**C. FOLLOW THE BLINKING BULB**

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_



### D. I KEEP SEEING SPOTS

13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

### E. IT'S ALL IN CODE

PICTURE GRID

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A																				
B																				
C																				
D																				
E																				
F																				
G																				
H																				
I																				
J																				
K																				
L																				
M																				
N																				
O																				
P																				
Q																				
R																				
S																				
T																				

17. \_\_\_\_\_

18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

Name

Date

Class

21. \_\_\_\_\_

22. \_\_\_\_\_

23. \_\_\_\_\_

**F. IT'S ALL IN YOUR HEAD**

24. \_\_\_\_\_

25. \_\_\_\_\_

26. \_\_\_\_\_

**CONCEPT SUMMARY:**

\_\_\_\_\_  
\_\_\_\_\_



Physical Science Idea 5  
Technology  
Investigation 11

Name \_\_\_\_\_

Date \_\_\_\_\_

Class \_\_\_\_\_

Data Sheet

A. THE SHOPPING CART IS A GAS

1. \_\_\_\_\_

2. \_\_\_\_\_

B. FIRE AT YOUR FINGERTIPS?

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_ Explain. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

C. DON'T SLIP AWAY FROM ME

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_ Explain. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

16. \_\_\_\_\_ Explain. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

#### **D. KEEPING ALIVE TAKES ENERGY**

17. \_\_\_\_\_

18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

#### **CONCEPT SUMMARY:**

\_\_\_\_\_

\_\_\_\_\_

You have completed a series of 11 investigations. They all have one idea in common. State this idea in your IDEA Summary.

## IDEA 1 SUMMARY

Investigation  
Number

Concept

You have completed a series of investigations. They all have one idea in common. Read the concepts listed above. Now state the idea that combines them all.

**IDEA SUMMARY:**





## IDEA 2 SUMMARY

Investigation  
Number

Concept

You have completed a series of investigations. They all have one idea in common. Read the concepts listed above. Now state the idea that combines them all.

**IDEA SUMMARY:**



### IDEA 3 SUMMARY

## Concept

You have completed a series of investigations. They all have one idea in common. Read the concepts listed above. Now state the idea that combines them all.

### IDEA SUMMARY:



## IDEA 4 SUMMARY

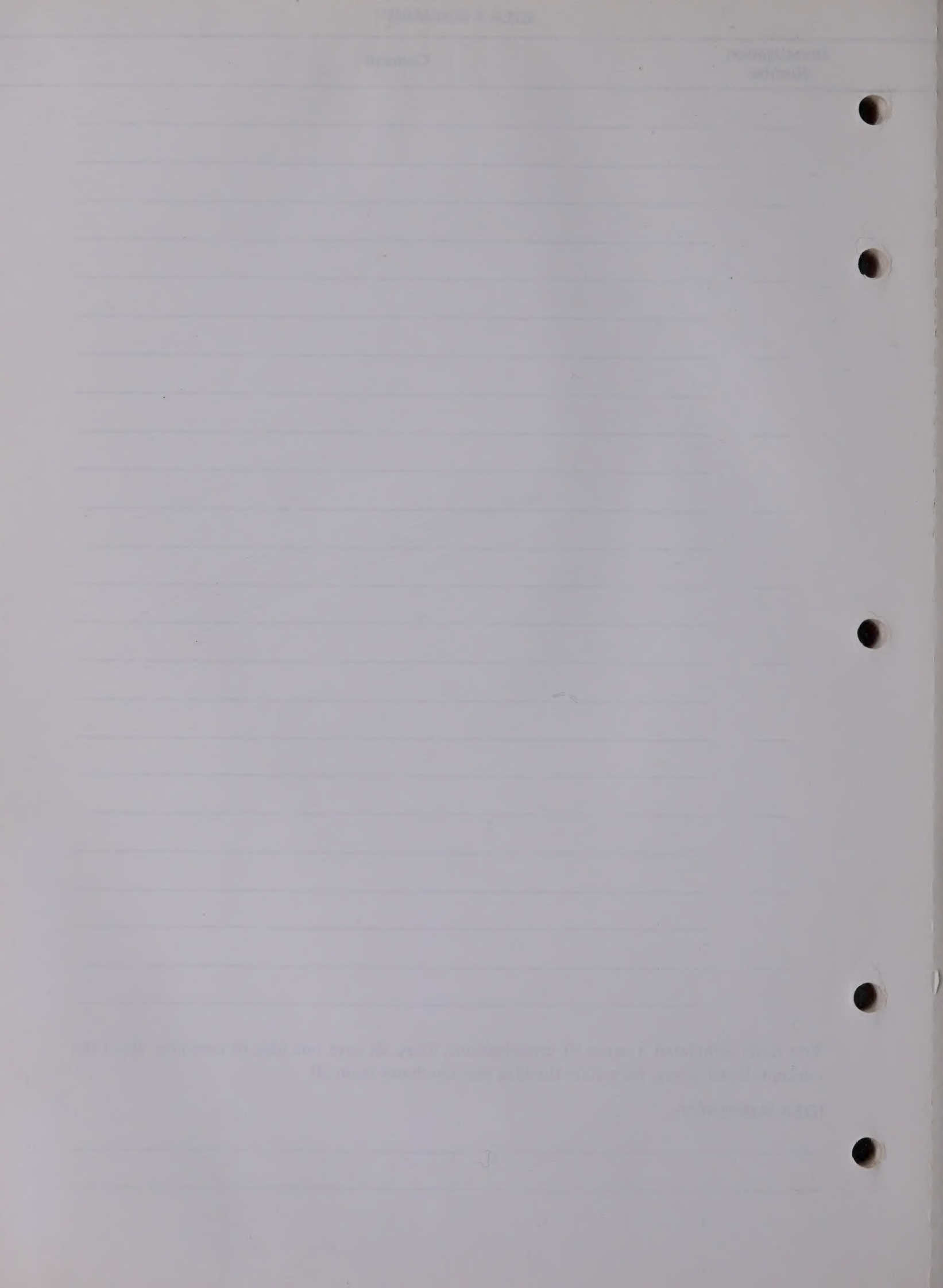
Investigation  
Number

Concept

You have completed a series of investigations. They all have one idea in common. Read the concepts listed above. Now state the idea that combines them all.

**IDEA SUMMARY:**





## IDEA 5 SUMMARY

Investigation  
Number

Concept

You have completed a series of investigations. They all have one idea in common. Read the concepts listed above. Now state the idea that combines them all.

**IDEA SUMMARY:**



**B21769**

